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Air Operating Permit
Excess Emissions Report
Form Part II

Name of Facility	Shell, Puget Sound Refinery	Reported by	Tim Figgie
Date of notification	Oct 21, 2010	Incident type: breakdown/ upset/startup or shutdown	Upset/Startup
Start Date	Oct 21, 2010	Start Time:	11:00 PM
End Date	Oct 21, 2010	End Time:	12:00 AM
Process unit or system(s): HTU 1			

Incident Description

On October 21, 2010 at approximately 9:00 PM the HTU1 stack SO2 went high due to high H2S content of the plant fuel gas. The HTU1 was importing fuel gas from the main plant system, which had become high in H2S. Operations began troubleshooting the HTU1 amine absorber and plant amine system by reducing charge on the DCU and decreasing circulation on absorber tower 4BC-30, one of the plant fuel gas treaters. Operations also increased temperature on Amine Recovery Unit (ARU) #1 to improve H2S stripping, which caused the fuel gas H2S to dropped. It was later determined that the increase in plant fuel gas H2S was caused by an increased rate of high sulfur crude oil processing. There were 2, 3-hour rolling average periods of the 20-ppmv limit exceeded.

Immediate steps taken to limit the duration and/or quantity of excess emissions:

Operations began troubleshooting the HTU1 amine absorber and plant amine system by reducing charge on the DCU and decreasing circulation on absorber tower 4BC-30, one of the plant fuel gas treaters. Operations also increased temperature on ARU1 to improve H2S stripping, which caused the fuel gas H2S to dropped.

Applicable air operating permit term(s): 5.7.3

Estimated Excess Emissions:	Pollutant(s):	Pounds (Estimate):
Based on a SO2 CEMS and a fuel gas flow meter.	SO2	4

The incident was the result of the following (check all that apply):

- ☐ Scheduled equipment startup
- ☐ Scheduled equipment shutdown
- ☐ Poor or inadequate design
- ☐ Careless, poor, or inadequate operation
- ☐ Poor or inadequate maintenance
- ☒ A reasonably preventable condition

Did the facility receive any complaints from the public?

- ☒ No
- ☐ Yes (provide details below)

Did the incident result in the violation of an ambient air quality standard

- ☒ No
- ☐ Yes (provide details below)

Root and other contributing causes of incident:

The root cause of this event was a high rate of high sulfur crude oil processing and low steam rates on the ARU1.

The root cause of the incident was:
(The retention of records of all required monitoring data and support information shall be kept for a period of five years from the date of the report as per the WAC regulation (173-401-615))

☒ Identified for the first time
☐ Identified as a recurrence (explain previous incident(s) below – provide dates)

Are the emissions from the incident exempted by the NSPS or NESHAP "malfunction" definitions below?

☒ No
☐ Yes (describe below)

Definition of NSPS "Malfunction": Any sudden, infrequent, and not reasonably preventable failure of air pollution control equipment, process equipment, or failure of a process to operate in a normal or usual manner. Failures that are caused in part by poor maintenance or careless operation are not malfunctions. 40 CFR 60.2
Definition of NESHAP "Malfunction": Any sudden, infrequent, and not reasonably preventable failure of air pollution control and monitoring equipment, process equipment, or a process to operate in a normal or usual manner which causes, or has the potential to cause, the emission limitations in an applicable standard to be exceeded. Failures that are caused in part by poor maintenance or careless operation are not malfunctions. 40 CFR 63.2

Analyses of measures available to reduce likelihood of recurrence (evaluate possible design, operational, and maintenance changes; discuss alternatives, probable effectiveness, and cost; determine if an outside consultant should be retained to assist with analyses):

To prevent a reoccurrence, the amine strength has been increased slightly and the lean amine operating temperature was lowered from 106 degrees to 100 degrees. Also, condensate additions to the amine system will be metered, which will help keep the ARU system stable.

Description of corrective action to be taken (include commencement and completion dates):

See above

If correction not required, explain basis for conclusion:

See above

Attach Reports, Reference Documents, and Other Backup Material as Necessary. This report satisfies the requirements of both NWCAA regulation 340, 341, 342 and the WAC regulation (173-400-107).

Is the investigation continuing? ☒No ☐Yes

Is the source requesting additional time for completion of the report? ☒No ☐Yes

Based upon information and belief formed after reasonable inquiry, I certify that the statements and information in this document and all referenced documents and attachments are true, accurate and complete.

Prepared By: _ Fred Stone __ Date: ___October 4, 2010

Responsible Official or Designee: Joel FOR SGK Date: 11/30/10